

California Environmental Protection Agency
AIR RESOURCES BOARD

**CALIFORNIA CERTIFICATION PROCEDURES FOR ENGINE PACKAGES FOR USE
IN SPECIALLY CONSTRUCTED VEHICLES FOR 2012 AND SUBSEQUENT MODEL
YEARS**

Adopted: [Insert Date]

Note: The entire text the certification procedure set forth below is new language proposed to be added to the California Code of Regulations.

7/26/2011

NOTE: This document is incorporated by reference in sections 2210 through 2217, title 13, California Code of Regulations (CCR). It contains the majority of the requirements necessary for certification of a new specially constructed vehicle engine package for sale in California, in addition to containing the exhaust and evaporative emission standards and test procedures for these engines.

For the purpose of this procedure, the term ARB refers to the California Air Resources Board, and the term "Executive Officer", or his or her authorized representative or designate.

CALIFORNIA CERTIFICATION PROCEDURES FOR ENGINE PACKAGES FOR USE IN SPECIALLY CONSTRUCTED VEHICLES FOR 2012 AND SUBSEQUENT MODEL YEARS

1. Applicability.

- (a) This document describes the procedures for evaluating and certifying new light duty engine packages for installation in specially constructed vehicles (SPCNS). By definition, specially constructed vehicles are built for private use, not for resale, and are not constructed by a licensed manufacturer or remanufacturer. A specially constructed vehicle may be built from:
- (1) a kit;
 - (2) new or used, or a combination of new and used, parts; or
 - (3) a vehicle reported for dismantling, as required by Vehicle Code Section 5500 or 11520, which when reconstructed does not resemble the original make of the vehicle dismantled.

A specially constructed vehicle is not a vehicle that has been repaired or restored to its original design by replacing parts.¹

Below are listed the conditions under which ARB will exercise its authority to grant such certifications.

2. Emissions Standards.

The exhaust emissions standards applicable to certified engine packages are shown at 13 CCR Section 2222, which incorporates by reference "California

¹ California Vehicle Code 580.

Exhaust Emission Standards and Test procedures for 2001 and subsequent model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles”, adopted August 5, 1999, amended September 27, 2010.

3. Worst Case Vehicle.

Below are the criteria for determining the overall worst case vehicle.

- (a) ARB will consider the “worst case” vehicle for exhaust emission purposes to be a light duty vehicle that a vehicle test weight, vehicle road load, vehicle frontal area, calibration, emission control system configuration and calibration, transmission, engine displacement, and engine speed to vehicle speed (N/V) ratio which (1) with respect to emission deterioration over the vehicle’s useful life, produces the greatest stress on the emission related components or (2) with respect to certification testing, has the greatest probability of exceeding any of the applicable emission standards. Unless otherwise indicated by engineering evaluation of information supplied by the manufacturer, or available to ARB staff from other sources, the Executive Officer shall select the largest engine displacement within the highest test weight class as a “worst case” vehicle.
- (b) ARB will consider the “worst case” vehicle for evaporative emissions purposes to be a vehicle that has the canister with lowest working capacity, fuel tank with the highest vapor space when filled to 50 percent capacity, fuel tank configuration expected to sustain the maximum heat transfer from the engine, fuel injected engine, and purge strategy that evacuates the lowest mass of fuel vapors from the canister during the applicable exhaust Federal Test Procedure (FTP).

4. Vehicle Testing.

- (a) Exhaust emissions. The manufacturer may demonstrate compliance with these procedures by showing that the exhaust emissions from the worst case vehicle with the certified engine package installed is in compliance with the California new vehicle exhaust emission standards for the vehicle class and model year of the test vehicle, according to the following standards:
 - (1) “Federal Test Procedure (FTP).” Manufacturers must demonstrated compliance with exhaust emissions on the FTP driving scheduled, as outlined in title 40, CFR, Subparts B and C, except as amended in the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles”

- (2) "50° Exhaust Emission Standards." Manufacturers must also demonstrate compliance with the 50° Exhaust Emission Standards for LEV II passenger cars or light duty trucks, as applicable, as outlined in the "California Exhaust and Particulate Emission Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," 50°F Emission Test Procedure.
- (3) "Highway NOx Standard." The maximum emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR 600 Subpart B, which is incorporated herein by reference) shall not be greater than 1.33 times the passenger car and light duty truck standard set forth in section 1961(a)(1), CCR. Both the projected emissions and the HWFET standard shall be rounded in accordance with the ASTM E29-67 to the nearest 0.1 g/mi (or 0.01 g/mi for vehicle certified to the 0.05 or 0.02 g/mi NOx standards) before being compared.
- (4) "Supplemental Federal Test Procedure (SFTP) Off-Cycle Emission Standards." Manufacturers must also demonstrate compliance with the SFTP Off-Cycle Standards for LEV II passenger cars or light duty trucks, as applicable, as outlined in the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" subpart D, section 2, SFTP General Provisions for California, which incorporates by reference and amends 40 CFR 86.1810-01.
- (b) Evaporative Emissions. The manufacturer may demonstrate compliance with these procedures by showing that the exhaust emissions from the worst case vehicle with the certified engine package installed is in compliance with the California new vehicle evaporative emission standards for the vehicle class and model year of the of the test vehicle must not exceed evaporative emissions standards set for new light duty vehicles in Section 1976, title 13, CCR. The test procedures for determining compliance with standards set forth in the "California Certification Procedures for Engine Packages for Use in Specially Constructed Vehicles for 2012 and Subsequent Model Years", adopted [insert date], and incorporated by reference herein, which refer to the "California Evaporative Emissions Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles", adopted August 5, 1999, and last amended December 2, 2009, which in turn incorporates by reference and modify 40, CFR, 86.130-78 through 86.143-90 as they existed July 1, 1989.
- (c) Grouping of Engines and Evaporative Emissions Control System (ECS).

- (1) This procedure shall apply to each certified engine package type separately, except that a manufacturer may group engines in the same engine family for the purpose of selecting one representative emissions test engine and establishing deterioration factors (DFs). If grouping of certified engine packages is approved, ARB will issue one Executive Order (EO) covering all engine models in the group. The engine family criteria in 40 CFR 86.094-24 should be used to determine whether one engine may represent other engines for testing and establishing DFs.
- (2) Evaporative ECS should be grouped into evaporative families per 40 CFR 86.078-24. Evaporative ECS components are those components which may contribute to fuel evaporative emissions or running loss emissions, and components designed to control evaporative emissions. Evaporative ECS components may include, but are not limited to, canister, purge valve, roll-over valve, fuel lines, hoses, connectors, fuel tank, fuel cap seal, fuel pump seals (non-immersed pump only), and fuel injection system (fuel injectors, fuel rail, pressure regulator, etc.). If the evaporative component is not required to be provided, or offered in the engine package to the ultimate purchaser, use components recommended in the manufacturer's installation manual.
- (d) The certified engine package must be installed in the worst case vehicle in accordance with the instructions the manufacturer provides to its ultimate purchasers. The worst case vehicle with the certified engine package installed must meet the accumulation requirements of Title 40, CFR, 86.094-26(a)(3)(i).
- (e) Subject to advance approval by the Executive Officer, manufacturers may utilize carryover and/or carryacross of previously generated emission data, from a previous certified vehicle with the identical certified engine configuration of the engine package for which the manufacturer seeks to obtain certification.
- [(f) Placeholder for OBD demonstration data.]*
- (g) Confirmatory Testing. The Executive Officer may require that any test vehicle be submitted to the Air Resources Board, at such place or places as the Air Resources Board may designate, for the purposes of conducting confirmatory emissions tests. The Executive Officer may also specify that such testing be conducted at the manufacturer's selected laboratory facility, in which case instrumentation and equipment specified by the Executive Officer must be made available by the manufacturer for test operations. Confirmatory testing will be performed within 30 days after ARB's receipt of all required vehicle emission test data obtained pursuant to paragraph (c)(1)(C). If the confirmatory test

results indicate that any regulated pollutant exceed the applicable standards, the Air Resources Board will deny the manufacturer's certification request.

5. Delivery of Engines.

- (a) When an engine manufacturer delivers an engine package that has been certified under this procedure to an ultimate purchaser, the following components must also accompany the engine:
 - (1) The certified engine package must include an evaporative canister, purge valve, and purge logic.
 - (2) The certified engine package must include a complete exhaust emission systems with all critical components included. A statement that the certified engine package is not legal for use in a SPCNS unless all required exhaust and evaporative controls are installed.
- (b) In addition to the components above, the engine manufacturer the following written materials must be included in the engine package:
 - (1) The engine manufacturer must furnish with each certified engine package written instructions for the required maintenance and use of the certified engine package by the ultimate purchaser, and the written instructions shall be consistent with this section and any other applicable regulations, including meet the contents and format requirements as outlined in 40 CFR, Section 1051.130. (References to the federal emission standards shall mean California exhaust and evaporative emission requirements.)
 - (A) Fuel tank specifications, e.g., tank material, maximum capacity, minimum distance from the engine, gas cap seals, filler neck, pressure/vacuum relief settings, etc. must be included in the installation manual to ensure that the assembled vehicle will comply with the evaporative emission standard.
 - (B) The engine manufacturer must submit the above instructions with the manufacturer's preliminary application for each certified engine package for approval by the Executive Officer.
 - (C) The Executive Officer may reject or require modification of written instructions for, among other reasons, incompleteness or lack of clarity. Approval by the Executive Officer of the written instructions shall be a condition of certification.

- (2) A statement that the certified engine package, exhaust ECS, and evaporative ECS must be installed in a SPCNS with an N/V ratio less than the N/V ratio of the worst case vehicle and below the weight of the worst case vehicle.
- (3) A statement that no changes may be made to the certified engine package and evaporative ECS, including, but not limited to: changes to the fuel metering system; changes to the ignition system, changes to the camshaft; and modifying, recalibrating, removing, or failing to properly install any other specified component.
- (4) A statement that failure to meet the requirements of paragraphs above will cause the engine package to violate ARB's certification requirements for which monetary fines and other penalties can be applied.
- (5) A label that meets the requirements of Section 2223, title 13, CCR, and an explanation of where and how the label is to be permanently attached on the vehicle.
- (6) An engine owner's manual that is to be provided to the ultimate purchaser. The owner's manual provided by the engine manufacturer must contain maintenance instructions for the ultimate purchaser that comply with 40 CFR 86.411-78 and 86.412-78. The owner's manual provided by the engine manufacturer must contain an explanation of the tampering and defeat device prohibitions applicable under the federal Clean Air Act (42 USC 203(a)(3)) and California State law (Vehicle Code Section 27156).
- (7) A notice, printed on a separate sheet of paper in 12 point or larger type explaining the documentation, record keeping, notification, access to records requirements for certified engine packages installed SPCNS in the state of California specified in section 9 below.
- (8) An affidavit (triplicate copies), which must be completed by the installer, indicating that all of the above-described requirements for the proper installation of the certified engine package and the record keeping and notification requirements described in section 11 below have been read and understood. Provide a mailing address for the affidavit to be sent.
- (9) A warranty card (duplicate copies) requesting the certified engine package make and model, the serial number of the engine involved, the date of installation, and the installer's name (and company as applicable) from the installer. Provide a mailing address for the warranty card to be sent.

6. Manufacturer Production Reporting.

An engine manufacturer certifying engine packages under this procedure shall submit to ARB a report that provides the total number and serial numbers of certified engine packages produced for the model year, as specified in Section 2212(g), title 13, CCR, by June 30 of the year following the model year. For example, manufacturer reports would be due by June 30, 2014, for model year 2013.

7. Application.

An engine manufacturer that desires to have an engine package certified under this procedure must submit a copy of the written application required herein that contains all information needed to demonstrate compliance with the ARB certification procedure for engine package and all the supplemental requirements listed above.

Manufacturers planning to obtain ARB certification for the first time should send a "Letter of Intent" to certify engines in California to:

Chief
Mobile Source Operations Division
California Air Resources Board
9480 Telstar Avenue, Suite 4
El Monte, CA 91731
Attn: On-Road Certification/Audit Section

The Letter of Intent should include general information on the company's product offering and contact information including (i) persons authorized to signed documents for submittal to ARB, (ii) persons authorized to submit signed documents into ARB's Document Management System (DMS), and (iii) persons authorizes to communicate with ARB staff during the certification review process. Upon receiving the Letter of Intent, the ARB will assign a manufacturer code to the manufacturer and register the authorized personnel in the ARB's DMS. Thereafter, all certification related documents must be submitted via the Internet into the ARB's DMS.

Information about the DMS may be found ARB's "Document Management System" web page, found at the following link:

<http://www.arb.ca.gov/msprog/dms/dms/htm>.

8. Issuance of Executive Orders (EO).

ARB will issue an EO to the engine manufacturer for an engine package that meets the requirements of these procedures. The certification EO will contain all appropriate requirements as deemed necessary by the ARB to assure compliance with these procedures.

9. Installer Requirements.

The elements described below are intended as examples of techniques that can be used by the engine manufacturers and other to help prevent SPCNS with certified engine packages from being built incorrectly or not according to the manufacturer's instructions. Other compliance and quality assurance procedures not listed here can and should be used to prevent these violations from occurring. An installer or ultimate purchaser is not required to apply for or receive ARB certification for its newly built SPCNS with certified engine package, provided such person follow the steps below. However, if violations occur, ARB retains authority to seek penalties from all persons involved in the violations, including manufacturers.

An installer:

- (a) Installs a certified engine package and emission related components provided by the manufacturer following the installation instructions provided by the engine manufacturer. Acquires other necessary parts, per the manufacturer's recommendations and instructions, and installs as recommended and according to the manufacturer's instructions.
 - 1. Does not install the certified engine package in a vehicle that exceeds the weight or N/V limits used to certify the engine package.
 - 2. Does not modify the certified engine package and emission related components provided by the manufacturer.
- (b) Permanently affixes the required engine manufacturer's emission label in a readily accessible location on the vehicle as specified by the engine manufacturer
- (c) Maintains, for a period of not less than two years, written and photographic records documenting (1) the N/V ratio; (2) weight; (evaporative canister installation (photograph required); (4) installation of the label meeting the requirements of section 5 above (photograph required); (5) the appearance of the finished SPCNS from both the right and left sides (photographs required); and (6) for ECS using one or more oxygen sensors, photographic evidence that the oxygen sensors were installed in the proper location.
- (d) Notifies ARB within 10 days of assembling the first SPCNS using a certified engine package of the location where inspections can be performed and where records will be kept.

- (e) Reports to ARB all SPCNS built with a certified engine package each year, no later than January 1. Reports should include vehicle make and model, engine make and model, and engine serial number.
- (f) Provides for immediate inspection of records documenting the proper assembly of each SPCNS with a certified engine package upon the request of ARB.
- (g) Provides an installation warranty of 1 year or 12,000 miles that, under penalty of perjury, the certified engine package and ECS was installed per the manufacturer's instruction.
- (h) Completes and returns to the manufacturer an affidavit, as provided by the manufacturer according to section 4, subsection (i) above, confirming under penalty of perjury, the certified engine package has been installed per the manufacturer's instructions into a SPCNS. A copy of the completed affidavit must also be given to the ultimate purchaser.

10. Emissions Control System Warranty Statement.

Each engine manufacturer shall furnish a copy of the following statement with each certified engine package:

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board (and manufacturer's name, optional) is pleased to explain the emission control system warranty on your (year) engine. In California, new motor vehicles must be designated, built, and equipped to meet the State's stringent anti-smog standards. (Manufacturer's name) must warrant the emission control system on your engine for the period of time listed below provided there has been no abuse, neglect, or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition system, catalytic converter (or other after-treatment device), and engine computer. Also included may be hoses, belts, connectors, and other emission-related assemblies. Where a warrantable condition

exists, (manufacturer's name) will repair your engine at no cost to you, including diagnosis, parts, and labor.

MANUFACTURER'S WARRANTY COVERAGE:

For 2012 and subsequent model year engines sold for use in specially constructed vehicles.

For 3 years or 50,000 miles (or a longer period of time or mileage, optional), whichever first occurs.

If your SPCNS with certified engine package fails a Smog Check inspection, or if any emission-related part on your certified engine package is defective, the defective part and/or all necessary repairs and adjustments will be made by (manufacturer's name) to ensure that your ECS (enter warranty).

OWNER'S WARRANTY RESPONSIBILITIES:

- As the certified engine package owner, you are responsible for the performance of the required maintenance listed in your owner's manual. (engine manufacturer's name) recommends that you retain all receipts covering maintenance on your certified engine package, but (engine manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- You are responsible for presenting your certified engine package-equipped specially constructed vehicle to a (manufacturer's name) authorized repair facility as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.
- As the certified engine package owner, you should also be aware that (manufacturer's name) may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact (insert chosen manufacturer's contact) at 1-XXX-XXXX or the California Air Resources Board at 9528 Telstar Avenue, El Monte, CA 91731.

11. Warranty Card.

The engine manufacturer shall provide a warranty card with each certified engine package for and intended for California sale or use. The warranty card shall be supplied and filled out in triplicate; the original for the customer, one copy for the installer to keep (if applicable), and one copy to be sent back to the engine manufacturer. The copy to be returned to the engine manufacturer shall have pre-paid postage and be of sufficient size to allow for mailing without the use of a separate envelope.

The warranty card shall include the following:

- (a) The general terms and conditions of the emission control warranty;
- (b) A statement that the certified engine package has been designed and manufactured to meet the warranty requirements;
- (c) A place for the customer's signature in acknowledgement of the emission control warranty;
- (d) The engine serial number;
- (e) The vehicle model year, make, model, and odometer reading on which the certified engine package was installed;
- (f) The date of certified engine package purchase;
- (g) The date of certified engine package installation if applicable; and
- (h) The name of the assembly shop or facility, if applicable.

12. Violations and Penalties.

If violations occur (i.e. installers are incorrectly installing certified engine packages into specially constructed vehicles), ARB retains authority to seek penalties from all persons involved in the violations, including installers and manufacturers.